



Contribution ID: 429

Type: **Poster (+) Presentation**

## Experimental Determination of Intrinsic In-Plane Permeability for Thin Porous Media

*Wednesday, 2 June 2021 16:00 (1 hour)*

Nowadays, thin porous media have attracted much attention because of their importance to various industries. Hygiene products, paper, filters, fuel cells, membranes, textiles, muscular tissues, and other biological or manufactured thin compositions are widely encountered in daily life. The typical characteristic of a thin porous layer is that its thickness is much smaller than its in-plane dimensions. Determining the hydraulic properties is essential to understand and model fluid flow in thin porous media. In this presentation, we describe a new simple custom-built apparatus for measuring intrinsic permeability of a thin fibrous sheet in in-plane direction. Either water or gas can be injected into the setup as the fluid phase. We measured the permeability values for two types of thin fibrous porous media using either water or gas phase. The fibrous sheets were cut by 0 degree, 45 degrees, or 90 degrees to the fibers' direction. The results have shown that the measured values using gas phase were slightly larger than the ones obtained using water phase. The largest permeability value was found when the flow direction was paralleled to the fibers' direction.

### Time Block Preference

Time Block A (09:00-12:00 CET)

### References

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### Student Poster Award

**Primary authors:** Dr ZHUANG, Luwen (Sun Yat-sen University); Prof. HASSANIZADEH, S. Majid (Utrecht University)

**Presenter:** Dr ZHUANG, Luwen (Sun Yat-sen University)

**Session Classification:** Poster +

**Track Classification:** (MS16) Fluid Interactions with Thin Porous Media